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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/610,437	07/03/2000	Sergio Bosso	05788.0145	3695

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EXAMINER

PAK, SUNG H

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 04/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/610,437

Applicant(s)

BOSSO ET AL.

Examiner

Sung H. Pak

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Europe on July 2, 1999. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-15, drawn to an optical transmission system and resonant modulator, classified in class 385, subclass 3.
- II. Claims 16-20, drawn to an electrode structure, classified in class 385, subclass 8.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the particulars of the electrode structure claimed in group II are not required for the patentability of the optical resonant

modulator of group I. The subcombination has separate utility such as electro-optic switching electrodes.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

During a telephone conversation with Jennifer Medlin on April 2, 2002 a provisional election was made with traverse to prosecute the invention of group I, claims 1-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

All the references submitted by the applicants via PTO-1449 have been considered by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 9-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Toyohara (US 5,572,610).

Toyohara discloses an optical modulator with all the limitations set forth in the claims, including: an electro-optic substrate (fig. 4); an optical waveguide formed in the substrate and having a variable index or refraction (fig. 4 and column 1 lines 15-19); an active modulator electrode formed on the substrate in relation to the waveguide to effect electro-optic variation of the index of refraction (fig. 4); an interface port formed on the substrate (fig. 4); an electrical structure, comprising of first, second and third electrical element, formed on the substrate and coupled to the interface port and the electrode, an impedance of the optical modulator including the interface port and the electrical structure being substantially equal to the impedance of the signal source (R1, R2, R3 in fig. 4 and column 3 lines 42-52); the first and second electrical structure having a length greater than $\lambda/40$ (column 7, table 1), which is typically 0.4mm to 2.5mm according to applicants' specification (page 15).

In regard to claim 1, although Toyohara reference does not explicitly disclose the use of optical source, RF signal source, optical fiber line for transmission of modulated signal, and an optical amplifier, such elements are inherently used in an optical

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modulator arrangement. Therefore, these limitations are implicitly anticipated by the Toyohara reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyohara (US 5,572,610).

To the extent that optical source, RF signal source, optical fiber line, and optical amplifiers are not inherently disclosed by the reference, the claim is rejected based on 35 USC 103(a).

Toyohara discloses an optical modulator with all the limitations set forth in the claims, as discussed above, except it may not inherently disclose the use of optical source, RF signal source, optical fiber line and optical amplifier in conjunction with the modulator. However, such elements are well known and commonly used in the opto-electronic art. They provide a known advantage of allowing for reliable and efficient optical signal modulation. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Toyohara device to have optical source, RF signal source, optical fiber line and optical amplifier. It would have been desirable to have reliable and efficient optical signal modulator arrangement.

Claims 2, 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skeie (US 5,854,862).

Skeie discloses an optical modulator with all the limitations set forth in the claims, except it does not teach the formation of electrical impedance matching structure formed on the substrate. Nevertheless, Skeie does disclose: an electro-optical substrate (fig. 6); an optical waveguide formed in the substrate (fig. 6); active modulator electrode (fig. 6); an interface port (fig. 6); an electrical structure formed and coupled to the interface port and the electrode, an impedance of the optical modulator including the interface port, and the electrical structure being substantially equal to the impedance of the signal source (fig. 6, column 10 line 64- column 11 line 4); a resonant frequency of the modulator being over 1GHz (abstract).

However, formation of electrical structure on the integrated waveguide circuit substrate is well known in the art. Such configuration is well known to be advantageous because it allows for a compact opto-electronic device. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Skeie device to have electrical structure formed on the substrate. It would have been desirable to have a compact opto-electronic device.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Skeie (US 5,696,855) and Kawano et al (5,220,627) disclose optical modulators with impedance matching mechanism.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (703) 308-4880. The examiner can normally be reached on Monday - Thursday : 6:30am-5:00pm.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

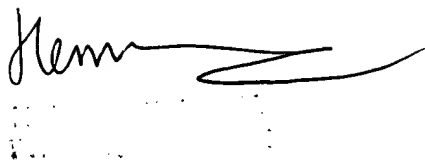
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Sung H. Pak
Examiner
Art Unit 2874

sp
April 4, 2002

A handwritten signature in black ink, appearing to read 'Sung H. Pak', with a long horizontal flourish extending to the right. Below the signature, there are several small, faint, illegible marks.